# The Lepidoptera of the Cairngorms National Nature Reserve

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## Introduction

The Aviemore district must be one of the most popular collecting areas in Scotland yet the lepidoptera of the Cairngorms NNR (hereafter referred to as the Reserve or the NNR) have remained relatively unknown. The reasons are not hard to find: most visitors stay only a few days in the valley and so do not have time to survey a significant part of the Reserve; Craigellachie NNR, Granish Moor and the Bogach at Alvie are all more accessable and, possibly more critically, contain known interesting species; and finally, by contrast, the Reserve is remote, exposed and very hard work to cover adequately.

In 1976 I was offered a sabbatical term by Winchester College and from late March until early September of that year I was employed by the Nature Conservancy Council to undertake as full a survey of the NNR as possible. In 1977 I returned for five weeks, the last week of July and the whole of August, and in 1978 I was in the area for three weeks, the last two weeks of August and the first week of September. On all these occasions the NCC kindly supplied me with transport and office facilities.

A full report of the survey is at present being prepared for the NCC and I am grateful to them for allowing me to publish this article first.

Anyone seeing this article who is able to add species to the list for the NNR, or can give additional localities, is kindly asked to contact the author, if possible enclosing two copies of his records. All letters will be acknowledged and one copy of the records forwarded to the NCC.

## Brief Description of the Reserve

The Reserve, established in July 1954, now consists of 26,000 ha. and its main importance is that it contains the largest mass of really high land in Britain. Viewed from the north, the area appears as two high plateaux bisected by the Lairig Ghru, which runs from Coylumbridge, rises to a height of 835 m. and then decends to Deeside. The eastern plateau contains the summits of Cairn Gorm and Ben Macdui and the western plateau the summits of Braeriach and Cairn Toul. All four are over 1,240 m., the highest being Ben Macdui at

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MAP

Reproduced by courtesy of the NCC. The letters *a* to *g* indicate the positions of the main trap sites within the Reserve; the letter *t* indicates the positions of casual trap sites; and the letter *k* indicates the main trap site at Kincraig, outside the Reserve.

*Note:* (i) St. Valery Hut and Curran Bothy no longer exist; (ii) the nature trail at Achlean is closed.

1,309 m. The high land is the most truely 'arctic' in Britain. Associated with these tops are a series of spectacular corries, high-level lochs and streams. On the western plateau, south of Gleann Einich and above Glen Feshie, there is the largest area of high blanket bog in the country, most of the land being above 900 m. This is known at the Moire Mhor or 'The Great Moss'.

Between the high land and the lush margins of the Spey valley there is a succession of different habitats. At Rothiemurchus there is an extensive remnant of the old Caledonian pine forest, with its rich under-storey of bilberry-crowberry heath; at Craig Fhiaclach the pines reach their highest natural level in Britain at some 640 m.; heather dominates above this level, slowly becoming more wind-flattened with increasing altitude until it fades out at around 1,000 m. Patches of bearberry and, at higher altitude, crowberry can become quite extensive in this heath-land. Above 1,000 m. *Rhacomitrium* heath dominates.

Anyone wanting much fuller details of the vegetation in particular or the area in general should see Nethersole-Thompson & Watson, 1974.

**Previous Work on Lepidoptera in the NNR**

In 1952 Comm. G. W. Harper went to live in Newtonmore and from then until the late 60s collected and recorded over a large area. He wrote up his findings in a series of papers, *Harper* (1954-1968), and these papers give the only self-contained account of the macrolepidoptera of the region — roughly a circle of 20-mile radius centred on Newtonmore. At the request of the NCC he recorded as much as he could within the boundary of the Reserve but he limited his range to the area around Loch an Eilein, only occasionally going further affield.

E. C. Pelham-Clinton and R. M. Mere visited the Reserve soon after it was declared an NNR, and recorded particularly in Gleann Einich and on Braeriach plateau — and ran a trap on the summit! Pelham-Clinton also visited Glen Derry and Glen Luibeg in 1970 and Glen Derry again in 1971.

Sufficient to say that by 1976 there were approximately 115 species recorded on the NCC files, the majority of the macro records coming from Harper and the majority of the micro records from Pelham-Clinton.

There was an entomological survey sponsored by Shell but no records from this have seen the light of day — at least no records of moths or butterflies have appeared.

It is perhaps interesting to note that the provisional Atlas of the Insects of the British Isles, Part 2, Lepidoptera, had no records at all for the grid square:

NJ00 Gairn Gorm Summit, Coire Raibert, Loch Avon, Loch Etchachan;
NN89 Carn Ban Mor, Coire Garbhlach;
NN99 Loch Einich, Moine Mhor;
NN88 Upper Glen Feshie.

## This Survey

In view of the rather fragmentary nature of the previous records, I decided to approach the area as if nothing were known. I therefore selected seven trapping sites around the north and north-western edge of the Reserve, trying to choose them to give maximum coverage of the area and maximum diversity of vegetation type. I chose an eighth site, Inshriach, which I used whenever the NCC landrover was out of action, since this was the only locality that I could get my car to in the Reserve. In 1977, I dropped the sites at Loch Einich and Achlean and in 1978 I dropped Achnagoichan as well. A glance at the map will show that I got reasonable coverage of the lower area of the Reserve but, in view of the fact that I only trapped at each site once a week, I am sure that I have failed to get a complete picture at any of the sites.

During the day I covered as much of the Reserve as I could and I suppose I spent on average about six or seven hours a day in the hills — only just an adequate amount of time given the remoteness of so much of the NNR.

## Traps and Trap Sites

To save space in the systematic list, I use the following letters to repressent the trap sites:

| | | | |
|---|---|---|---|
| A. | Loch an Eilein | NN/899072. | 290 m. |
| B. | Cairgorm Club Footbridge | NH/928078. | 300 m. |
| C. | Loch Gamhna | NH/894073. | 260 m. |
| D. | Loch Einich | NN/921999. | 510 m. |
| E. | Inshriach Bothy | NH/885056. | 285 m. |
| F. | Allt Ruadh | NH/864010. | 380 m. |
| G. | Achlean | NN/852985. | 340 m. |
| H. | Achnagoichan | NH/912083. | 310 m. |

Apart from the restrictions mentioned above, these sites were all trapped once a week for the time I was in the area. In 1976 I used two 6-watt actinic Heath traps, and in 1977 and '78 I used a 125-watt Robinson trap.

Other trap-sites used were: Gleann Eninich — NH/925046 — 430 m. — July 10th, 15th, 24th, 29th, all 1976 — one Heath trap; Gleann Einich — NH/928066 — 350 m. — 29.vii.76 — one Heath trap; Coire Garbhlach — NN/872947 — 510 m. 24.vii.76; Coire Garbhlach — NN/881939 — 900 m.— 11.viii.77 — one Heath trap; Moine Mhor — NN/895926 — 980 m. — one Heath trap; Moine Mhor — NN/904927 — 974 m. — 11.viii.77 — one Robinson trap.

## Site outside Reserve

| | | | |
|---|---|---|---|
| K. | 'Kincraig' | NH/8506. | 220 m. |

Apart from the first three weeks in 1976, I lived at the above site and in 1976 and '78 I ran a Robinson trap there every night. In 1977 I ran the Robinson trap in the Reserve and did no recording at all at Kincraig. Over all three seasons I did no day-time or dusk work there since I was always in the NNR. I have included these result in the systematic list so that they can be compared and contrasted with the results from the NNR and in the hope that all the results taken

together will eventually form the basis of a micro list for the whole area, and not just for the NNR.

**Weather**

The weather during 1976 has been commented on many times in this journal and it is clear that I could not have picked a better year to 'work' the Cairngorms. Indeed, after reading Harper's comments on the weather over the years, it is obvious that the weather in the Cairngorms was relatively even better than over the country as a whole. A few brief figures will confirm this.

Weather records kept at Achnagoichan for the period 1955 to 1964 gave the following:

*Average warmest month: July,* 16.2°C.

*Average Minimum Monthly Rainfall:* 40 mm. in April — with March and May similar.

*Average August Rainfall* (the wetest month): 98 mm.

Compare 1976: the average temperatures in June, July, August were 20.6, 22.2, 21.2°C; the *maximum* monthly rainfall was in May, 47 mm., all other months under 24 mm. and August had only 16 mm.!

Although 1977 and 1978 were not nearly so good as 1976, they were still better than average. In short, it is hard to imagine that any moth survey has been blessed with such good weather over such a long period of time in an area that is renowned for it's bad weather!

**Day-time Records**

During the day I covered as much of the Reserve as I could and I list below the major areas of the NNR that I visited that were away from the trap sites. The numbers opposite each area indicate the number of visits specifically to these areas, as opposed to merely walking through the area on the way to somewhere else. The three sets of figures give the visits for each of the three seasons I was there.

(1) Cairn Gorm & Coire Railbert: 7-0-1. (2) Loch Avon & Loch Etchachan: 3-1-0. (3) Cairn Grom to Ben Macdui: 3-1-0. (4) Lairig to Sinclair Hut: 5-1-2. (5) Gleann Einich to the Loch: 5-0-0. (6). Creag Fhiaclach, Coire Follais, & Argyll Stone area: 4-0-1. (7) Geal-charn & Coire Follais: 1-0-0. (8) Achlean & Coire Garbhlach: 5-0-1. (9) Moine Mhor & Carn Ban Mor: 3-1-0. (10) Upper Glen Feshie: 0-1-1. (11) Loch Einich to Braeriach: 3-0-0. (12) Cairn Toul: 1-0-0. (13) Lairig to Linn of Dee: 0-0-1.

A brief glance at the map will show that I failed to cover adequately the areas drained by the Geusachan Burn, the lower River Eidart and the upper Feshie and Glen Derry and Glen Luibeg.

**The Systematic List**

In the list that follows I have tried to convey as much information as space allows. After each species I give the trap sites it was recorded from, using the letter abbreviations, then the day-flying records and any larvae or pupae found. The only exception to this is for the records from Kincraig: I have grouped all these under the trap site and have not given

further details about day-flying, larvae, etc., since this report is mainly concerned with the NNR. To save space I use the following conventions:

*A* means at trap site A; *Loch an Eilein* means 'in the area of Loch an Eilein but not actually at trap-site A', similarly *Loch Gamha,* etc; *Achlean/Coire Garbhlach* means the area between these two places; *above Loch an Eilein* and *above Loch Gamhna* means the areas to the south of these places, where the land starts to rise.

This list contains all the records for the NNR that I have been able to find and unless otherwise stated all records are those of the author. In the case of records already on the files, I have only given these if I have failed to up-date them myself. In the event, additional records have come from Pelham-Clinton, abbreviated to E.C.P-C., Harper and two records from Charles Godfray and Mark Sterling, who visited the area in the summer of 1977.

The only species for which records are incomplete are those for the 'ear' moths: I killed only a few and, having identified all three species from the NNR, I then stopped recording them.

In general I have given full details of occurence, but numbers for only a few species, and I am grateful to the Editor for advice on which species might be of interest to his readers.

*Vice Counties.* All records in this list are from *V.c.96, East Invernesshire,* except for the following places:

*V.c.94 Banffshire.* Fords of Avon, Loch Avon, Cairn Gorm, Coire Raibert, Coire Domhain, Shetler Stone, Lochan Buidhe.

*V.c.92 South Aberdeenshire.* Loch Etchanchan, Coire Spuntan Dearg, Glen Derry, Glen Luibeg, Cairn Toul, Pools of Dee.

*V.c.92/V.c.96.* Braeriach & Einich Cairn lie on the boundary between these Vice Counties.

**Brief Summary of Results**

The systematic list gives 387 species for the Reserve. I failed to record eleven species that were on the NCC files. The total number of different species at each of the trap sites were as follows: A — 225; B — 130; C — 160; D — 32; E — 141; F — 123; G — 102; H — 122; (K — 322). These figures give a good indication of the relative richness of the sites though two things need to be taken into account: I never ran a 125-watt trap at G; and I recorded more from A, Loch an Eilein, than any other site since it is the main entrance to the Reserve and without doubt the easiest place to see nearly all the butterflies. The figures for B, Cairgorm Club Footbridge, are slightly lower than I expected but this may be due to the fact that there is no really good birch in the area and the ants seemed particularly active there — the trap always had a lot of ants in it and I assume the toll on larvae is very great. I am informed that the best ant-free area is between the two rivers that meet at Cairngorm Club Footbridge but I never went there. Perhaps one day?

The records away from the trap sites, i.e. day-flying records only, give: Lairig to Sinclair Hut — 56; Gleann Einich — 54; Achlean/Coire Garhlach — 64; Upper Glen Feshie, from Ruigh-aiteachain bothy south — 27, this after only two visits, both in August when the main season was over. My guess is that Glen Feshie, from the bothy, would turn out to be the richest of these sites if only it could be adequately surveyed.

**Acknowledgments**

I wish to express my sincere thanks to Winchester College for granting me a sabbatical term and the Mathematics department for covering for me while I was away; to the Nature Conservancy Council and all the staff at Aviemore for the help they gave me; to Teddy Pelham-Clinton and the late Denzil Ffennell for the enormous amount of work they did on my behalf indentifying a lot of the micros; to Lord Dulverton and John Grant The Younger for granting me free access to all their land; and to all the entomologists who gave me help before, during and after my trips to the Cairngorms. These were: Bob Palmer, who gave me all the records he had for the south side of the NNR; Geoffrey Pyman, who sent me records of *Venusia cambrica* (Curtis) and *Eupithecia goosensiata* (Mabille) — I failed to find these in '76 but recorded both in '77; Charles Godray and Mark Sterling, who kindly sent me a copy of their records for '77; Col. A. M. Emmet, who indentified all larval mines; and David Carter of the British Museum (Nat. Hist.), who identified a large number of larvae I sent him, both as live specimens and as colour slides. To all these gentlemen thank you!

My thanks to the Edinburgh family who answered advertisement in *The Times* and offered the most marvellous acommodation for all these seasons. The house was in an ideal position to enable me to cover a large area of the NNR, situated as it was in Inshriach, and, as shown in the systematic list, it turned out to be an ideal locality for moths in its own right.

Finally, my thanks to my wife and children for putting up with moths for about 17 hours a day for the whole period. They also contributed a good many records, my four-year-old daughter being particularly good at finding larvae at head-height, her head-height that is!

**A Few Useless Statistics**

In the course of this survey I travelled over 7,000 miles by landrover, did over 130,000 vertical feet of hill-walking and open and shut gates while driving over 2,752 times.

**References**

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*(to be continued)*